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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/788,729   | 02/26/2004  | Sumantra Chakravarty | 030061 /QUALP825US  | 6099             |
| 70797  | 7590        | 07/10/2009           |                     |                  |
| TURCY & WATSON, LLP<br>127 Public Square<br>57th Floor, Key Tower<br>Cleveland, OH 44114 |             |                      | EXAMINER            | MURPHY, RHONDA L |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2416                |                  |
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|  |             |                      | NOTIFICATION DATE   | DELIVERY MODE    |
|  |             |                      | 07/10/2009          | ELECTRONIC       |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket1@thepatentattorneys.com  
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|                              |                                      |   |
|------------------------------|--------------------------------------|---|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/788,729 | <b>Applicant(s)</b><br>CHAKRAVARTY ET AL. |
|                              | <b>Examiner</b><br>RHONDA MURPHY     | <b>Art Unit</b><br>2416                   |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 14 April 2009.  
 2a) This action is FINAL.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-15,17,18 and 20-30 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-15,17,18 and 20-30 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 26 February 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

**DETAILED ACTION**

This office action is responsive to the communication filed on 4/14/09. Accordingly, claims 16 and 19 have been previously canceled and claims 1-15, 17, 18 and 20-30 are currently pending. Finality of the last Office action is withdrawn.

In view of the Appeal Brief Filed on 4/14/09, PROSECUTION IS HEREBY REOPENED. Action set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/Seema S. Rao/

Supervisory Patent Examiner, Art Unit 2416

***Response to Arguments***

1. Applicant's arguments, see page 4, filed 4/14/09, with respect to the rejection(s) of claim(s) 1, 8, 21 and 26 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of a newly found prior art reference.

***Claim Rejections - 35 USC § 101***

Claims 1-14 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to particular machine, or (2) transform underlying subject matter (such as an article or material) to a different state or thing. See page 10 of In Re Bilski 88 USPQ2d 1385. The instant claims are neither positively tied to a particular machine that accomplishes the claimed method steps nor transform underlying subject matter, and therefore do not qualify as a statutory process. Claims 1 and 8 recite in part, "encoding both first and second nominally orthogonal polarization signals with a same long code; and transmitting the long-encoded first and second nominally orthogonal polarization signals from respective first and second transmission sources to at least one destination", which is broad enough that the claim could be completely performed mentally, verbally, or without a machine.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 5 - 8, 12 -14, 18, 20, 21, 24-26, 29 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al. (US 7,072,324).

**Regarding claims 1 and 21,** Kim teaches a transmission method, comprising: encoding both first and second nominally orthogonal polarization signals with a same long code (*col. 5, lines 49-60; further described in col. 6, lines 11-15*); and transmitting the long-encoded first and second nominally orthogonal polarization signals from respective first and second transmission sources to at least one destination (*Fig. 6; from antennas A and B*).

**Regarding claims 5 and 12,** Kim teaches the method of claim 1, wherein: the transmitting and receiving step is carried out in an orthogonal code division multiple access (OCDMA) communications system (*col. 2, lines 1-2, 35-36*).

**Regarding claims 6, 14, 24 and 30,** Kim teaches the method of claim 1, wherein the transmitting step includes: transmitting the long-encoded first and second nominally orthogonal polarization signals from plural first and from plural second transmission sources, respectively, to at least one destination (*Fig. 6; from antennas A and B; also see Fig. 2; TXA1...TXAN*).

**Regarding claims 7 and 25,** Kim teaches, at the destination, receiving the encoded first and second nominally orthogonal polarization signals (col. 8, lines 44-50); and applying the same long code to the received encoded first and second nominally orthogonal polarization signals received at the destination (col. 8, lines 44-50).

**Regarding claims 8 and 26,** Kim teaches a method of demodulating first and second nominally orthogonal polarization signals that were transmitted from respective first and second transmission sources (*Fig. 6; from antennas A and B*). after having been encoded with a same long code (col. 5, lines 49-60; further described in col. 6, lines 11-15), the method comprising: receiving the encoded first and second nominally orthogonal polarization signals (col. 8, lines 44-50); and applying the same long code to the received encoded first and second nominally orthogonal polarization signals (col. 8, lines 44-50).

**Regarding claims 13 and 29,** Kim teaches a communication method including the demodulating method of claim 8 and further comprising: encoding both the first and second nominally orthogonal polarization signals with the same long code (col. 8, lines 46-50); and transmitting the long-encoded first and second nominally orthogonal polarization signals from respective first and second transmission sources to at least one destination at which the demodulating method is performed (col. 8, lines 46-50).

**Regarding claim 18,** Kim teaches a system configured to perform the method of claim 1 (Fig. 6).

**Regarding claim 20,** Kim teaches a system configured to perform the method of claim 8 (Fig. 13).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2 – 4, 9 – 11, 22 – 23 and 27 – 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US 7,072,324) in view of Hwang et al. (US 2002/0115473 A1).

**Regarding claims 2, 9, 22 and 27,** Kim teaches the method of claims 1, 8, 21 and 26. Kim fails to explicitly disclose orthogonalizing plural sub-channels of each of the first and second nominally orthogonal polarization signals by applying respective plural mutually distinct Walsh codes in each sub-channel.

However, it is known in the art for the orthogonal polarization signals to contain sub-channels, or time slots for the purpose of transmitting data within certain intervals.

Furthermore, Hwang discloses applying respective plural mutually distinct Walsh codes in each sub-channel (page 1, paragraph 12).

In view of this, it would have been obvious to one skilled in the art to modify Kim's method by applying Walsh codes to each channel, for the purpose of supplying a spreading code to each the channels.

**Regarding claims 3, 10, 23 and 28,** the combined method of Kim and Hwang teach the method of claims 2, 9, 22 and 27. Kim fails to explicitly disclose the method wherein the orthogonalizing step includes: applying different Walsh codes to different respective signals originating from different respective users of the communication system.

However, Hwang teaches applying different Walsh codes to different respective signals originating from different respective users of the communication system (page 4, paragraph 43).

In view of this, it would have been obvious to one skilled in the art to modify Kim's method by applying different Walsh codes to each channel, in order to spread the channels using a distinct set of codes.

**Regarding claims 4 and 11,** the combined method of Kim and Hwang teach the method of claims 3 and 10. Kim further teaches disclose the transmitting step is carried out in an orthogonal code division multiple access (OCDMA) communications system (col. 2, lines 1-2, 35-36).

7. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US 7,072,324).

**Regarding claims 15 and 17,** Kim teaches the method of claims 1 and 8, but fails to explicitly disclose a computer program product storing program instructions for execution on a computer system having at least one data processing device, whose instructions when executed by the computer system cause the computer system to perform the method of claims 1 and 8.

However, it is known in the art for a computer program having a data processing device to perform the above method.

Furthermore, it would have been obvious to one skilled in the art to include a computer program, in order to execute the instructions to implement the method.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RHONDA MURPHY whose telephone number is (571)272-3185. The examiner can normally be reached on Monday - Friday 9:00 - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2416

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Seema S. Rao/  
Supervisory Patent Examiner, Art Unit 2416

Rhonda Murphy  
Examiner  
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